

WHAT IS CLAIMED IS:

1. A polymer powder produced by a process of milling or precipitating comprising a surface which is compact and not jagged.
2. A polymer powder for producing a three-dimensional object by means of laser sintering, wherein the powder comprises a BET-surface which is smaller than $6 \text{ m}^2/\text{g}$ and at the same time the upper grain limit is below $100\mu\text{m}$, the $D_{0.9}$ -value is below $90 \mu\text{m}$, and the $D_{0.5}$ -value is below $60 \mu\text{m}$ and the particles comprise a basically spherical shape.
3. A polymer powder according to claim 1 for producing a three-dimensional object by means of laser sintering, wherein the powder comprises a BET-surface which is smaller than $5 \text{ m}^2/\text{g}$ and at the same time the upper grain limit is below $100\mu\text{m}$, the $D_{0.9}$ -value is below $80 \mu\text{m}$, and the $D_{0.5}$ -value is below $55 \mu\text{m}$ and the particles comprise a basically spherical shape
4. A powder according to claim 1, wherein the powder has a BET-surface having a value smaller than or equal to $4 \text{ m}^2/\text{g}$.
5. A powder according to claim 4, wherein the powder has a BET-surface having a value smaller than or equal to $3 \text{ m}^2/\text{g}$.
6. A powder according to claim 5, wherein the powder has a BET-surface having a value smaller than or equal to $2 \text{ m}^2/\text{g}$.
7. A powder for manufacturing a three-dimensional object by means of laser sintering according to claim 1, wherein a laser sintering refreshing factor is less than 50 percent.
8. A powder according to claim 7, wherein the refreshing factor is less than 30 percent.
9. A powder according to claim 1, wherein the powder is a polyamide powder.

10. A powder according to claim 1, wherein the powder consists of polyamide 11 or polyamide 12.

11. A powder according to claim 9, wherein the powder is a precipitated PA12 powder.

5 12. A polymer powder according to claim 2 for producing a three-dimensional object by means of laser sintering, wherein the powder comprises a BET-surface which is smaller than $5 \text{ m}^2/\text{g}$ and at the same time the upper grain limit is below $100 \mu\text{m}$, the $D_{0.9}$ -value is below $80 \mu\text{m}$, and the $D_{0.5}$ -value is below $55 \mu\text{m}$ and the particles comprise a basically spherical shape

10 13. A powder according to claim 2, wherein the powder has a BET-surface having a value smaller than or equal to $4 \text{ m}^2/\text{g}$.

14. A powder according to claim 13, wherein the powder has a BET-surface having a value smaller than or equal to $3 \text{ m}^2/\text{g}$.

15 15. A powder according to claim 14, wherein the powder has a BET-surface having a value smaller than or equal to $2 \text{ m}^2/\text{g}$.

16. A powder for manufacturing a three-dimensional object by means of laser sintering according to claim 2, wherein a laser sintering refreshing factor is less than 50 percent.

20 17. A powder according to claim 16, wherein the refreshing factor is less than 30 percent.

18. A powder according to claim 2, wherein the powder is a polyamide powder.

19. A powder according to claim 2, wherein the powder consists of polyamide 11 or polyamide 12.

25 20. A powder according to claim 18, wherein the powder is a precipitated PA12 powder.

21. A method for producing a powder according to one of claims 1 to 20, wherein as a base material a plastic powder attained by means of precipitation or milling is used which is mechanically or mechanically-thermally mixed for at least one minute in an appropriate aggregate.

5 22. A method according to claim 27 wherein the base material has at least one further powder component.

23. A method according to claim 22 wherein a further powder component is a polymer powder or an additive.

10 24. A method for manufacturing a three-dimensional object by means of laser sintering wherein subsequent layers of the object to be formed are subsequently solidified from solidifiable powder material in positions corresponding to the object and a powder according to claims 1 to 20 is used as powder material.

25. A method according to claim 24 wherein the powder base material has at least one further powder component.

15 26. A method according to claim 25 wherein a further powder component is a polymer powder or an additive.